

Serial No. 10/085,920

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REMARKS**I. Introduction**

In response to the Office Action dated January 19, 2007, claims 1, 8, 15, and 22 have been amended. Claims 1-28 remain in the application. Re-examination and re-consideration of the application, as amended, is requested.

II. Double Patenting Rejection

On page 12, paragraphs (1)-(2) of the Office Action, claims 1, 8, 15, and 22 were provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 10, 19, and 28 of copending Application No. 10/085,346.

Applicants note that the subject matter of the copending application and the present application may change thereby obviating the need for the submission of a terminal disclaimer. Applicants may be willing to submit a terminal disclaimer should one become necessary. Therefore, at this time, Applicants traverse the rejection while reserving the right to submit a terminal disclaimer at a later date and upon the determination of allowable subject matter.

III. Prior Art Rejections

On page (4) of the Office Action, claims 8-28 were rejected under 35 U.S.C. §102(e) as being anticipated by Kocher, U.S. Patent No. 6,289,455 (Kocher). In paragraph (5) of the Office Action, claims 1-7 were rejected under 35 U.S.C. §103(a) as being unpatentable over Cohen et al., U.S. Patent No. 5,282,249 (Cohen).

Specifically, the independent claims were rejected as follows:

Regarding Claim 1, Cohen teach and describe a system for controlling access to digital services comprising: (a) a control center configured to coordinate and provide digital services; (b) an uplink center configured to receive the digital services from the control center and transmit the digital services to a satellite (Fig. 1/1 Item 20); (c) the satellite configured to: (i) receive the digital services from the uplink center (Fig. 1/2 Item 22); (ii) process the digital services (Fig. 1/2 Item 22), and (iii) transmit the digital services to a subscriber receiver station (Fig. 1/2 Item 24); (d) the subscriber receiver station configured to: (i) receive the digital services from the satellite (Fig. 1/2 Item 26); (a) control access to the digital services through an integrated receiver/decoder IRD) (Fig. 1/2 Item 30); and (e) a conditional access module (CAM) communicatively coupled to the IRD (Fig. 1/2 Item 32), [col.4 line 12 to line 66].

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Cohen do not disclose the CAM comprising nonvolatile protected memory component having state information to enforce desired functionality. However, Kocher disclose the CAM (Fig. 2 Item 225) comprising: (i) a protected nonvolatile memory component, wherein: (1) the protected nonvolatile memory component (col. 21 line 13 to line 15) is used to contain state information to provide desired functionality and enforce one or more security policies (i.e. regulating access) for accessing the digital services (col. 10 line 5 to line 47, and col. 5 line 55 to col. 6 line 3); and (2) programming control and a programming charge pump are shared by both the protected nonvolatile memory component and a microprocessor's non-protected nonvolatile memory component; and (ii) a fixed state custom logic block configured to control access to the nonvolatile memory component, and wherein data and address lines of the protected nonvolatile memory component are routed only to the fixed state custom logic block (col. 21 line 2 to col. 22 line 25). Kocher is analogous art because it discusses a method and apparatus for preventing piracy of digital content including the use of a smart card.

Therefore, It would have been obvious to one ordinary skill in the art at the time of the invention to include the teachings and features of CAM found in Kocher in the smart card used by Cohen, to control access to the broadcast data, because Kocher's method of protected memory of monitored data by using state information would not only promote security structure in the system of Cohen during receiving and distributing digital content (Kocher: col. 5 line 55 to line 56) but will also provide safeguards against attempt by unauthorized person to breach security of system.

Regarding Claim 8 Kocher teaches a method for limiting unauthorized access to digital services comprising:

(a) configuring a protected nonvolatile memory component (col. 21 line 13 to line 15), wherein: (i) the protected nonvolatile memory component is used to contain state information to provide desired functionality and enforce one or more security policies (i.e. regulating access) for accessing the digital services (col. 10 line 5 to line 47, and col. 5 line 55 to col. 6 line 3); and (ii) programming control and a programming charge pump are shared by both the protected nonvolatile memory component and a microprocessor's non-protected nonvolatile memory component; and (b) controlling access to the nonvolatile memory component through a fixed state custom logic block, and wherein data and address lines of the protected nonvolatile memory component are routed only to the fixed state custom logic block (col. 21 line 2 to col. 22 line 25).

Regarding Claim 15 Kocher teaches a conditional access module (CAM), (Fig. 2 Item 225) comprising:

(a) a protected nonvolatile memory component (col. 21 line 13 to line 15), wherein: (i) the protected nonvolatile memory component is used to contain state information to provide desired functionality and enforce one or more security policies (i.e. regulating access) for accessing digital services (col. 10 line 5 to line 47, and col. 5 line 55 to col. 6 line 3); and (ii) programming control and a programming charge pump are shared by both the protected nonvolatile memory component and a microprocessor's non-protected nonvolatile memory component; and (b) a fixed state custom logic block configured to control access to the nonvolatile memory component, and wherein data and address lines of the protected nonvolatile memory component are routed only to the fixed state custom logic block (col. 21 line 2 to col. 22 line 25).

Regarding Claim 22 Kocher teaches a. An article of manufacture for preventing unauthorized access to digital services comprising:

(a) means for configuring a protected nonvolatile memory component (col. 21 line 13 to line 15), wherein: (i) the protected nonvolatile memory component is used to contain state information to provide desired functionality and enforce one or more security policies (i.e. regulating access) for accessing the digital services (col. 10 line 5 to line 47, and col. 5 line 55 to col. 6 line 3); and (ii) programming control and a programming charge pump are shared by both the protected nonvolatile memory component and a microprocessor's non-protected nonvolatile memory component; and (b) means for controlling access to the nonvolatile memory component through fixed state custom

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logic block, and wherein data and address lines of the protected nonvolatile memory component are routed only to the fixed state custom logic block (col. 21 line 2 to col. 22 line 25).

Applicant traverses the above rejections for one or more of the following reasons:

(1) Neither Kocher nor Cohen teach, disclose or suggest that a microprocessor's non-protected nonvolatile memory component and a protected nonvolatile memory component use physical and logical address ranges that are the same;

(2) Neither Kocher nor Cohen teach, disclose or suggest two different nonvolatile memory components that share programming control and a programming charge pump;

(3) Neither Kocher nor Cohen teach, disclose or suggest programming control and a programming charge pump that are shared by both the protected nonvolatile memory component and a microprocessor's non-protected nonvolatile memory component;

(4) The rejections under 35 U.S.C. §102(e) Are Improper and Fail to Establish a Prima Facie Case of Anticipation.

Independent claims 1, 8, 15, and 22 are generally directed to controlling access to digital services. More specifically, the claims provide for a control center providing digital services to an uplink center that transmits the services to a satellite which sends it to a subscriber receiver station. A conditional access module (CAM) in the subscriber receiver station has specific functionality. Namely, a protected nonvolatile memory component contains state information that provides functionality and enforces security policies for accessing the digital services.

In addition, Applicants note that the claims provide further limitations. Namely, the claims provide for two nonvolatile memory components. One nonvolatile memory component is protected. The other nonvolatile memory component is unprotected and is referred to as a microprocessor's non-protected nonvolatile memory component. The claims provide specific limitations and details regarding both the protected and unprotected nonvolatile memory components. In one limitation, the data and address lines of the protected component are only routed to the fixed state custom logic block. Such a limitation provides a unique capability that is not disclosed in Kocher.

In addition, the amended claims provide that the microprocessor's non-protected nonvolatile memory component and the protected nonvolatile memory component use physical and logical address ranges that are the same. As set forth in paragraph [0067] of the application as filed,

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they can be shared since they are controlled and programmed by separate entities. The use of the same physical and logical address range helps obscure use of the memory (e.g., containing a hidden number) by potential attackers making it more difficult to determine the memory map and usage of code segments within the CAM.

Neither of the cited references teach nor suggest these various elements of Applicants' independent claims. The Office Action relies on Kocher to teach the protected nonvolatile memory component. However, nowhere in Kocher is there any discussion where logical and physical address ranges of a protected component and an unprotected component are the same. In fact an electronic search of Kocher for the term "logical" provided no results. Accordingly, without even mentioning a logical address range, Kocher cannot possibly teach that the same logical address range is used by two different and distinct nonvolatile memories. Further, advantages of such an embodiment are neither taught, described, or remotely alluded to in Kocher.

In addition to the above, Applicants note that the other cited references (i.e., Cohen) fail to cure the deficiencies of Kocher.

With respect to the programming charge pump arguments previously submitted. Applicants note that neither Cohen nor Kocher teach, describe, suggest, or allude to a programming charge pump whatsoever. The Examiner continues to assert that a switching device is equivalent to a programming charge pump. As previously indicated, a programming charge pump is not equivalent to a switching device. Further, Applicants submit that the prior art fails to teach the sharing of a programming charge pump and programming control on both a non-protected nonvolatile memory component and a protected nonvolatile memory component. In addition, the claims provide that data and address lines of the protected nonvolatile memory component are routed only to the fixed state custom logic block. The prior art fails to teach such an implementation. Paragraphs [0068]-[0069] of the originally filed specification describe the advantages of such shared control.

Again, the novel features of the invention do not lie in the mere use of the charge pump. Instead, Applicants submit that the sharing of the programming control and programming charge pump across the two unique nonvolatile memory components are not even remotely contemplated by the cited prior art. Further, the routing of the data and address lines of the protected component that use the same physical and logical address ranges while still sharing the same programming charge pump provides unique advantages to the system and design of the present invention. In this

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regard, the specification provide that such a design saves chip area and reduces chip cost while avoiding the ability for a microprocessor to provide control information that leads to a subsequent attack on the memory component. Such advantages are clearly absent from the prior art and any known method of use of charge pumps.

In addition, Applicants note that a prior Office Action admits that Kocher fails to teach the use of a charge pump. In this regard, the Action provides that charge pumps and the combination or manner in which they are used is known in the art. Such an assertion is wholly without merit as described above and as asserted in the prior responses.

Further, Applicants respectfully traverse the rejection under 35 U.S.C. § 102(e) because the disclosure of Kocher fails to meet the threshold for anticipation, i.e. placing the public in possession of the claimed invention. Specifically, anticipation under 35 U.S.C. § 102 has strict requirements that all elements of the claim must be found in a single reference in order to support an anticipation rejection (see e.g. M.P.E.P. 2131). A claim is anticipated only when a single prior art reference discloses each and every limitation in the claim. See, e.g., *Glaxo Inc. v. Novopharm Ltd.*, 34 USPQ2d 1565 (Fed. Cir. 1995). The disclosure need not be express, but may anticipate by inherency where it would be appreciated by one of ordinary skill in the art. *Id.* See also *In re Robinson*, 49 USPQ2d 1949, 1950-51, (Fed. Cir. 1999) ("if the prior art reference does not expressly set forth a particular element of the claim, that reference still may anticipate if that element is 'inherent' in its disclosure. To establish inherency, the extrinsic evidence 'must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be recognized by persons of ordinary skill'"). The requirement that an inherent element in a disclosure must be recognized by persons of ordinary skill in the art reflects the necessity that to constitute prior art under section 102, a reference must put subject matter into the possession of the public. See, e.g., *University of California v. Eli Lilly and Co.*, 43 USPQ2d 1398 (Fed. Cir. 1997). Therefore, in situations where an inherent element would not be recognized by persons of ordinary skill in the art, the reference cannot be anticipatory because a artisan cannot take the description of the invention in the printed publication, combine it with his own knowledge of the particular art, and from this combination be put in possession of the invention on which a patent is sought. See, e.g., *In re LeGrice*, 133 USPQ 365 (C.C.P.A. 1965).

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In view of the above, Applicants submit that the use of a charge pump as claimed is not an inherent element of Kocher and would not be recognized by persons of ordinary skill in the art. In this regard, Kocher cannot be anticipatory nor can it be used to reject the claims under 35 U.S.C. §102.

Further, under MPEP §2142 and 2143.03 "To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). "All words in a claim must be considered in judging the patentability of that claim against the prior art." *In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970)." In this regard, the claim limitations regarding the sharing of programming charge pumps and programming control cannot merely be ignored or bypassed when rejecting the claims. Nor can such language merely be bypassed by stating that the claims merely recite the use of a charge pump without acknowledging or even addressing the sharing of the charge pumps among multiple nonvolatile memories or the manner and context in which the charge pump is being used.

In addition, the claim amendments now provide that the physical and logical address ranges are the same in both the protected and non-protected nonvolatile memory components. Such a limitation is clearly not anticipated by Kocher under 35 U.S.C. §102(e).

Moreover, the various elements of Applicants' claimed invention together provide operational advantages over Kocher and Cohen. In addition, Applicants' invention solves problems not recognized by Kocher and Cohen.

Thus, Applicants submit that independent claims 1, 8, 15, and 22 are allowable over Kocher and Cohen. Further, dependent claims 2-7, 9-14, 16-21, and 23-28 are submitted to be allowable over Kocher and Cohen in the same manner, because they are dependent on independent claims 1, 8, 15, and 22, respectively, and thus contain all the limitations of the independent claims. In addition, dependent claims 2-7, 9-14, 16-21, and 23-28 recite additional novel elements not shown by Kocher and Cohen.

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IV. Conclusion

In view of the above, it is submitted that this application is now in good order for allowance and such allowance is respectfully solicited. Should the Examiner believe minor matters still remain that can be resolved in a telephone interview, the Examiner is urged to call Applicants' undersigned attorney.

Respectfully submitted,



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